9626/32/F/M/17/Q1

1 A software application has been fully tested so that it is error-free and has been implemented. There are no new situations likely to arise but the management wants to ensure that the software is working as well as it should.

Explain, with reasons, how you would maintain the software application.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/17/Q6

2 A new operating system for tablet computers has been developed and is now ready for testing to begin.

Analyse the difference between white box testing and black box testing.

[8]

STUDENTS RESOURCE

9626/32/M/J/17/Q4

3 RockIT Limo Hire is a taxi company that has an online booking system. Customers can book a journey using a smartphone. When the company receives a booking request from a customer, it collects the following data:

- customer name and mobile telephone number
- how many passengers
- address from which journey will start
- address of destination
- date and time of journey.

RockIT Limo Hire's computer system checks its booking diary to see if the booking can be accepted.

If the booking can be accepted:

- the customer is informed by text (SMS) that the booking is confirmed
- the booking is added to the electronic diary.

If the booking cannot be accepted:

- the customer is sent a text (SMS) to state that the booking is refused
- the customer details are deleted from the system.

STUDENTS RESOURCE

CamScanner

In the box below, draw a Level 1 data flow diagram (DFD) to represent the RockIT Limo Hire booking system.

STUDENTS RESOURCE

CamScanner

9626/32/M/J/17/Q8

4 A software company produces games for use on smartphones. It uses the Rapid Application Development method to develop the games.

Discuss the advantages and disadvantages of the Rapid Application Development method.

[8]

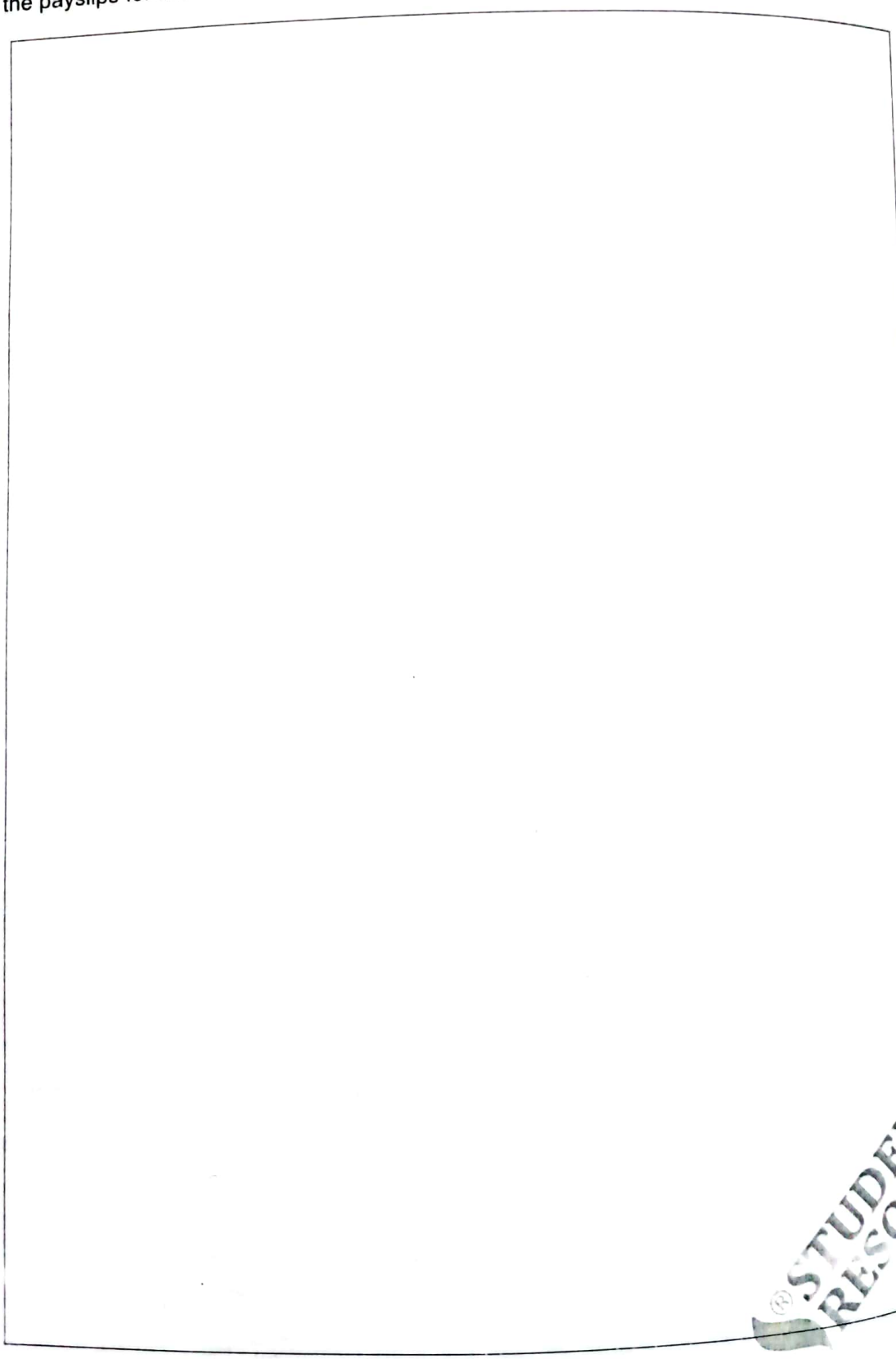
STUDENTS RESOURCE

CamScanner

9626/32/O/N/17/Q1

5 A company pays its workers weekly. The payroll department collects the data about the workers and stores it in a transaction file. At the end of the week, the transaction file is used to update the master file.

Draw a system flowchart which shows how the transaction file and master file are used to produce the payslips for the workers.



[8]

STUDENTS RESOURCE

CamScanner

9626/32/O/N/17/Q5

6 A software developer has decided to use a conventional 'waterfall' method of development to produce a new game application.

(a) Describe the stages of the 'waterfall' method that should be followed.

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STUDENTS RESOURCE

CamScanner

(b) Discuss the benefits and drawbacks to the developer of using the 'waterfall' method for developing the game application.

STUDENTS RESOURCE

CamScanner

9626/32/O/N/17/Q7

A new operating system for smartphones has been developed and is now ready for testing to begin.

Discuss the benefits and drawbacks of white box testing.

..... [8]

STUDENTS RESOURCE

CamScanner

9626/32/O/N/17/Q10

8 A new software application has been developed. A programmer has been brought in to make further developments. This programmer will need documentation specific to her needs.

Describe, giving reasons, the elements of the documentation that she will need.

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STUDENTS RESOURCE

CamScanner

9626/33/O/N/17/Q1

9 A new open-source operating system for smartphones is being developed. Prototypes are being constructed.

(a) You have helped to develop the new operating system and are now ready to test it. You have to create a test plan.

(i) Explain the importance of having a test plan.

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(ii) Describe, in detail, the testing strategy that would be carried out on this open-source operating system.

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STUDENTS RESOURCE

CamScanner

(iii) Discuss the benefits and drawbacks of the black box method of testing software.

[8]

STUDENTS RESOURCE

CamScanner

9626/33/O/N/17/Q3

10 A new computer system is to be installed by a company to replace its existing system. A systems analyst is producing a report on the current operations of the company before the company installs the new computer system. The analyst is interviewing the users of the existing system.

Evaluate other methods that the analyst could use to research the existing system.

..... [8]

9626/32/F/M/18/Q8

Describe the advantages of evolutionary prototyping compared to throw-away prototyping.

..... [4]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/18/Q4

12 As part of a project to create a new software application, a system analyst will produce a software requirements specification and a user requirements specification.

(a) Describe the contents of a software requirements specification for the new software application.

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(b) Describe the purpose of a user requirements specification for the new software application.

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(c) Give **one** reason why the user requirements specification might prove to be inaccurate.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/18/Q6

13 Tamsin is evaluating CPU hardware for use in a new tablet computer. She uses the charts in Fig. 1 to help her make a decision between using CPU 1 or CPU 2 in the new tablet.

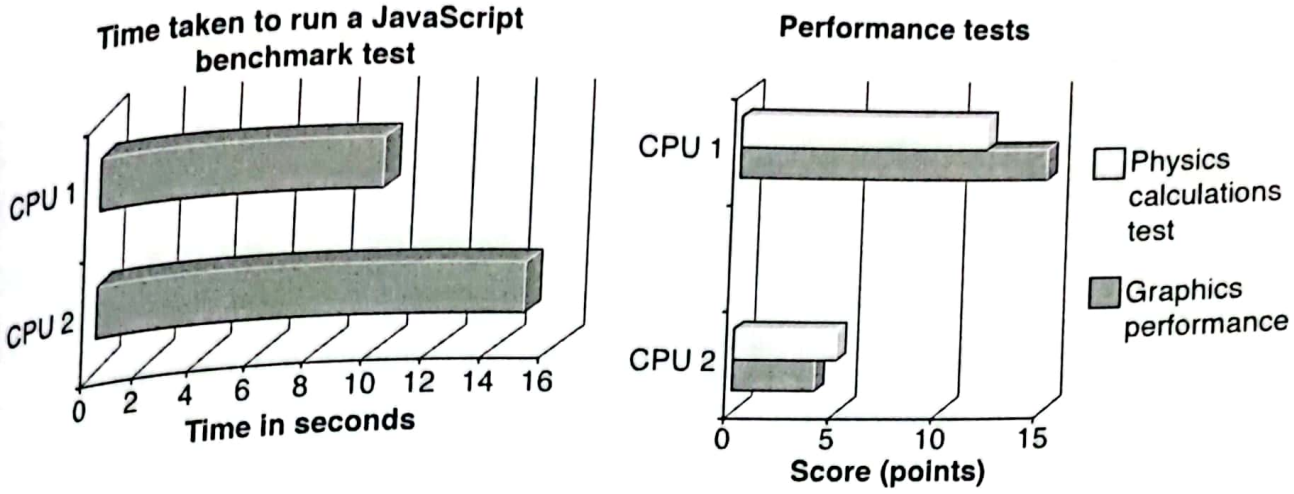

Fig. 1

Identify, with reasons based on the information in Fig. 1, the most suitable CPU for Tamsin to use in the new tablet computer.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/18/Q7

14 Cynthia has created a database to store details of her friends in the UK and wants to include their home addresses. She will create a validation routine to check that the UK postcode of their address is in a valid format when it is entered into the database.

UK postcodes must have an outward code and an inward code separated by a single space. The outward code is made up of the postal area and the postal district. The inward code also has two parts: the postal sector and the postal unit. A typical UK postcode is CB1 2EU.

The whole postcode conforms to a format as shown by the examples in Fig. 2.

	UK Postcode Formats				
	Outward Code		Inward Code		
	Area	District	Sector	Unit	Written as:
Example 1:	CB	1	2	EU	CB1 2EU
Example 2:	SW	1A	1	AA	SW1A 1AA
Example 3:	SW	1A	0	AA	SW1A 0AA
Example 4:	CV	4	8	JQ	CV4 8JQ

Fig. 2

Using the information given above, describe what the validation routine would have to do in order to check that the entered postcode was in a valid format.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/18/Q11

15 An automatic washing machine has a number of wash cycles controlled by an embedded computer system. The system can accept inputs to vary the temperature and spin speed. It also has 'start' and 'stop/cancel' buttons.

When the 'start' button is pressed the system checks, in this order:

- that the door is properly closed
- the temperature has been set by the user
- the spin speed has been set by the user
- if the load is either a 'full load' or 'half load' of washing.

The washing cycle will automatically stop if the set time has been reached or the 'stop/cancel' cycle button is pressed.

A section of the control sequence is shown in the flowchart in Fig. 4. Some flowchart labels are missing.

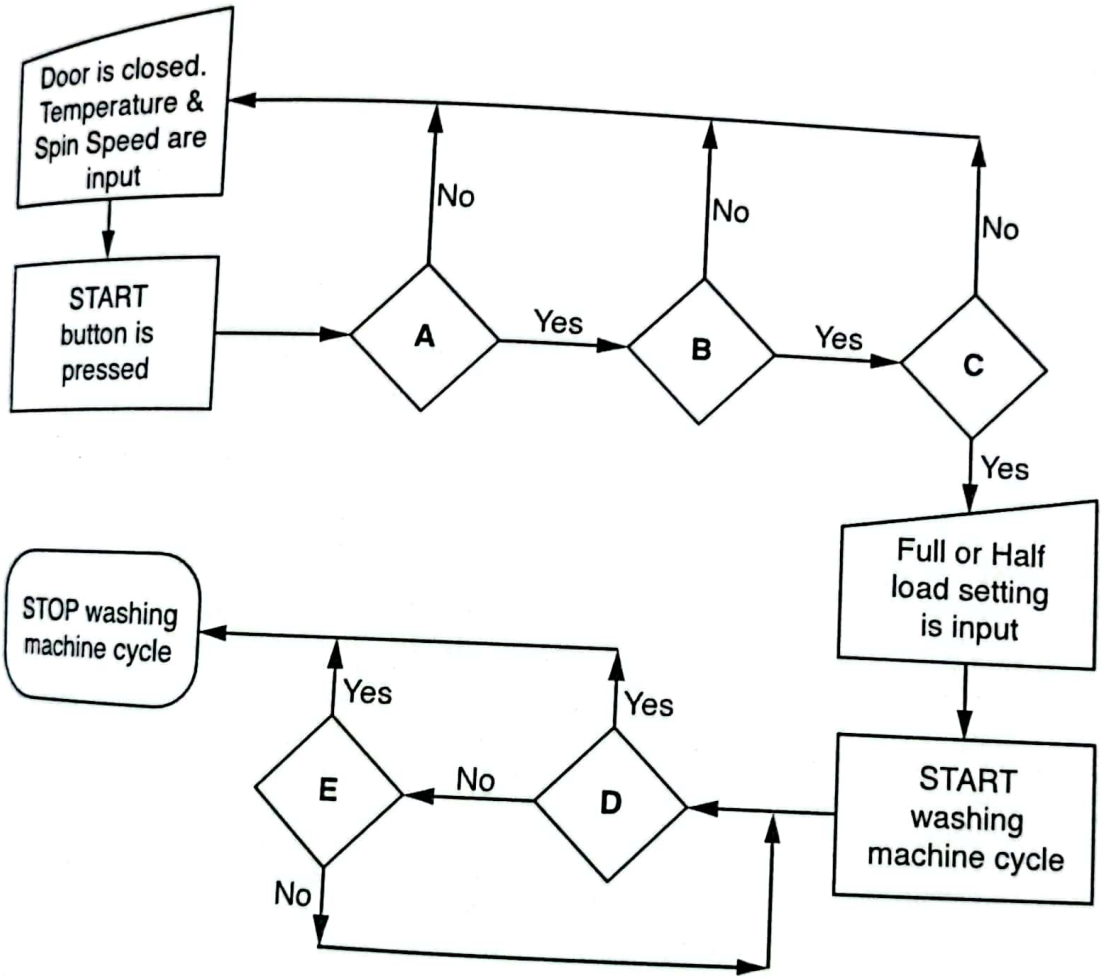

Fig. 4

STUDENTS RESOURCE

CamScanner

Complete the table below to describe how the embedded computer system controls the washing machine at **A**, **B**, **C**, **D** and **E**.

Position in flowchart	What is happening at the position
A	
B	
C	
D	
E	

[5]

STUDENTS RESOURCE

CamScanner

9626/32/M/J/18/Q5

16 A company sells replacement windows for customers' homes. A salesman visits customers' homes to measure the windows. The salesman usually takes a company laptop on the visit. The salesman is away from the office most of the day. When the salesman is back in the office he has to type up a report on the visit and create quotations to send to the customers. He needs access to a variety of documents including those found on the internet. The salesman also needs to be able to communicate with customers in a variety of ways.

The company managers are considering replacing the laptop with a new smartphone for the salesman to take on the visit.

The salesman has made a comparison of the two devices.

Explain why the salesman has told the company managers that both devices are needed for the visits.

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STUDENTS RESOURCE

CamScanner

9626/32/M/J/18/Q6

17 A software company is developing a new 'app' for smartphones. The Rapid Application Development (RAD) method is used to ensure that the 'app' is available as soon as possible.

(a) The RAD process involves several phases. The first phase is often referred to as Business Modelling.

Describe the tasks that must occur in this phase of RAD.

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(b) Describe **two** other phases of RAD.

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STUDENTS RESOURCE

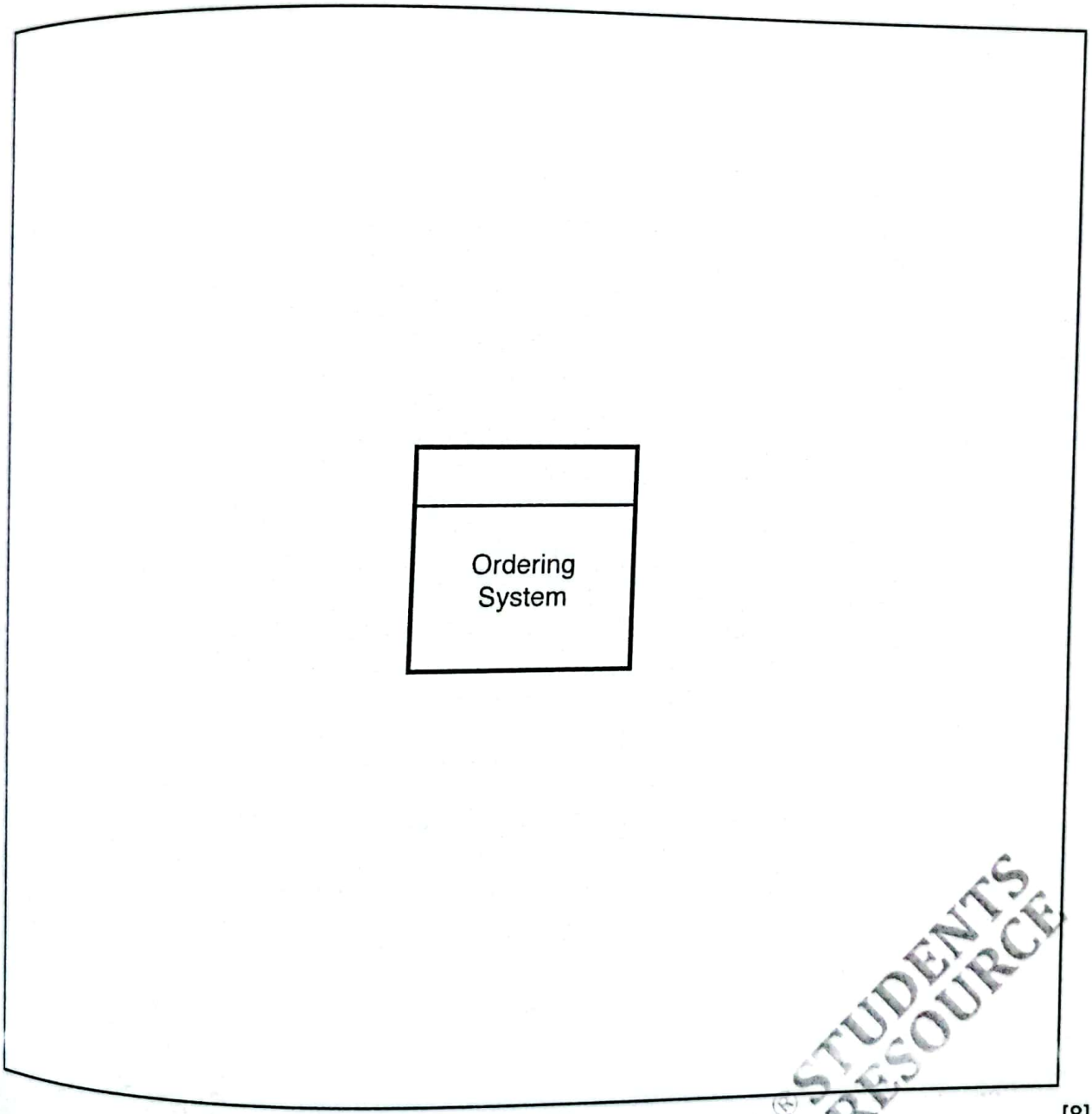
CamScanner

9626/33/M/J/18/Q5

18 RockICT Sales sells hats to customers direct from its warehouse. It has a centralised ordering system that is linked to the warehouse and accounts systems. When a customer orders a hat, the system:

- takes the orders from the customer
- checks the stock status with the warehouse
- sends messages to the customer advising of the status of the order
- sends out a request for payment and processes the payment
- requests the shipping of the hat from the warehouse
- receives a shipping confirmation and a stock inventory update from the warehouse
- sends stock inventory and payment updates to the accounts.

Draw a Level 0 (context level) Data Flow Diagram of the system to show the external entities and the data flow between these and the ordering system. The ordering system has been drawn in the centre of this box for you.



STUDENTS RESOURCE

[8]

CamScanner

9626/32/O/N/18/Q9

19 A software development company uses throw away prototyping to develop parts of a new system.

(a) Give **one** reason why the company would use throw away prototyping.

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(b) Describe **two** drawbacks to the company of using throw away prototyping.

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9626/32/O/N/18/Q10

20 Analyse the suitability of using pilot implementation to install and use WiFi internet access for guests in a chain of hotels.

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STUDENTS RESOURCE

CamScanner

9626/32/O/N/18/Q11

21 Analyse the effectiveness of observation as a research technique.

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STUDENTS RESOURCE

CamScanner

9626/33/O/N/18/Q2

22 An office area has an air conditioning system. The user guide for the system contains a troubleshooting flowchart that users can follow if the air conditioning is not working properly. The flowchart is shown in Fig. 3.

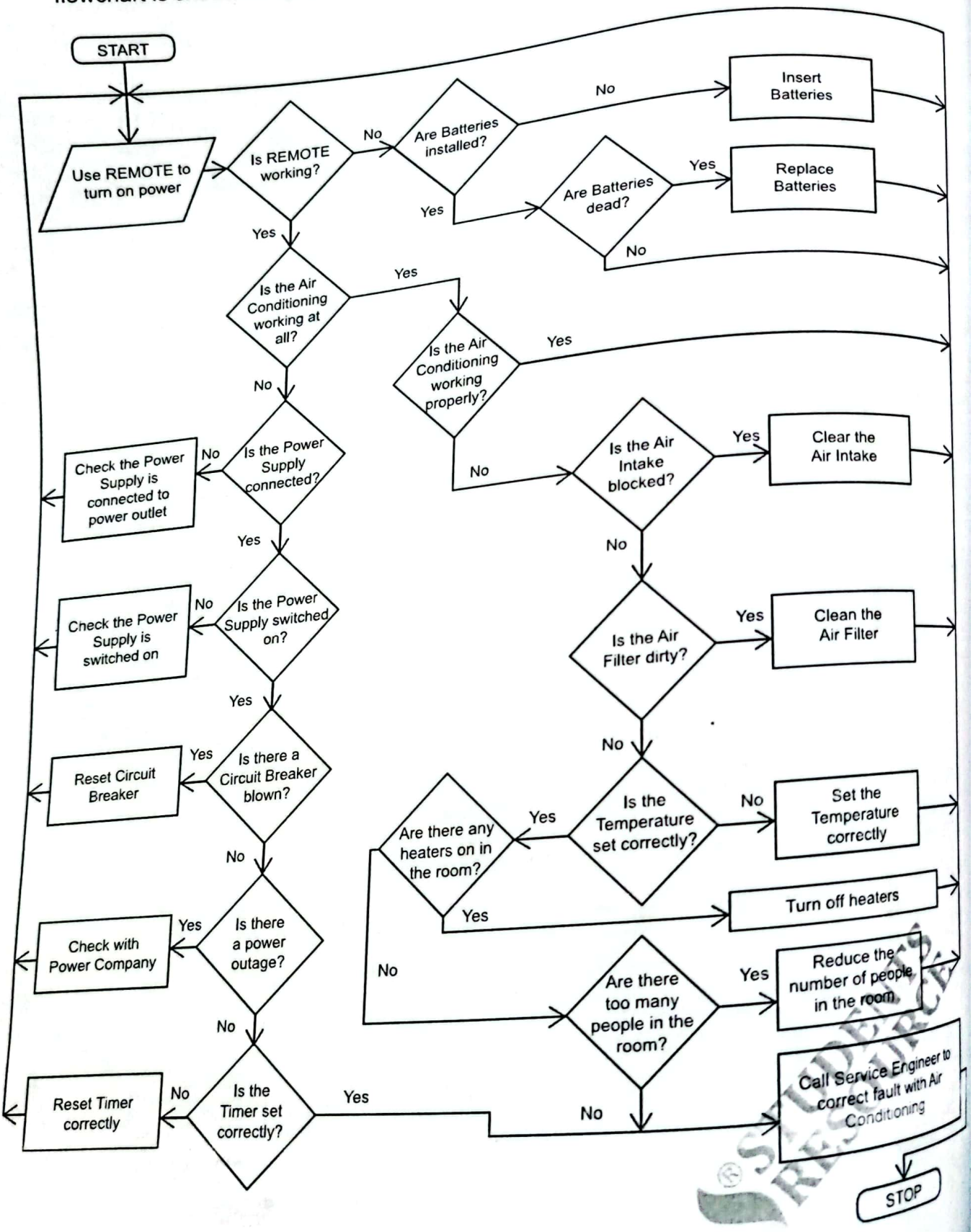

Fig. 3

The flowchart is considered to be too complex to follow quickly.

Using the information in the flowchart, redesign the troubleshooting guide by completing the table below with statements of instructions so that it is more easily understood. Some sets of instructions have been done for you.

Symptom	Items that must be checked
If, after checking the items below, the air conditioning still does not work, call the service engineer.	
The remote control does not work	*Check the batteries in the remote control are installed.*
	Check the batteries in the remote control are working.
The air conditioning does not work at all	
The air conditioning is not working properly	

[8]

STUDENTS RESOURCE

CamScanner

9626/33/O/N/18/Q8

23 A research and development (R&D) department of a company develops expensive goods. The development process has to be kept secret. The biometrics of all staff of the company are to be measured and used to restrict entry via the doors to the department.

A comparison of the suitability of various biometric methods that are available for use to identify staff has been compiled and is shown in Fig. 6. Each aspect of the biometric method has been rated High (H), Medium (M) or Low (L).

Biometric method used to identify a member of staff	How universal amongst staff members?	How unique is the measurement amongst staff members?	How permanent is the measurement to staff members?	How easy to collect at door from staff?	How acceptable to staff?	How resistant is the method to circumvent by staff?	Performance rating of the biometric method
Face	H	L	M	H	H	L	L
Fingerprint	M	H	H	M	M	H	H
Hand shape/ geometry	M	M	M	H	M	M	M
Veins in hand	M	M	M	H	H	H	M
Iris	H	H	H	H	H	H	H
Retina	H	H	M	L	L	H	H
Voice of staff member	M	L	L	M	H	L	L
Facial thermogram of staff member	H	H	L	H	H	H	H
DNA of staff member	H	H	H	L	L	H	H

Key: H = High M = Medium L = Low

Fig. 6

STUDENTS RESOURCE

CamScanner

Use the information in Fig. 6 to choose, with reasons, the biometric measurements that would be most suitable for measurement at the door.

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STUDENTS RESOURCE

CamScanner

9626/32/F/M/19/Q8

24 The owners of a bank are replacing its current system by transferring all accounts and processes to a new computer system. They have to be sure that the new system will carry out all the functions of the old system.

It is essential that there is no interruption in the services provided by the bank's computer system to its staff and customers.

Choose the most appropriate method of implementation and explain how the new system will be implemented.

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9626/32/M/J/19/Q4

5 Analyse the use of focus groups as a method of gathering feedback about a new product before it is made available for sale.

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STUDENTS RESOURCE

CamScanner

9626/32/M/J/19/Q12

26 Explain how perpetrator analysis could be used when planning for disaster recovery.

[6]

9626/31/O/N/19/Q3

27 Analyse the difference between alpha testing and beta testing.

[3]

STUDENTS RESOURCE

CamScanner

9626/31/O/N/19/Q4

Evaluate the use of questionnaires in comparison to interviews and observation when collecting data.

[8]

9626/32/F/M/20/Q3

(a) Describe the characteristics of incremental prototyping.

[4]

STUDENTS RESOURCE

CamScanner

(b) Discuss the advantages and disadvantages of incremental prototyping.

STUDENTS RESOURCE

CamScanner

9626/32/F/M/20/Q6

30 A chain of supermarkets has a computer system which deals with stock control, payroll, Point of Sale (POS) terminals and a customer database. The computer system is to be replaced with a new system.

Analyse the suitability of using phased implementation in this situation.

[8]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/20/Q10

31 An internet forum is a discussion site which can be used to collect data from people. Messages are posted on topics in threads. Data from the postings can be analysed and used in research.

By weighing up the advantages and disadvantages, evaluate the use of a forum to collect information from patients for use in medical research.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/M/J/20/Q8

32 A new website is being developed. The developer wishes to involve users in the development process.

Analyse the use of interviews for researching the views of the users.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/O/N/20/Q3

33 A new database management system (DBMS) has been created and fully tested by a software developer. Technical documentation has been produced for the DBMS to assist with its maintenance.

(a) Describe the features of alpha and beta testing.

[4]

(b) Explain why, apart from assisting with testing and software maintenance, technical documentation is needed.

STUDENTS RESOURCE

CamScanner

(c) Explain why maintenance should be carried out on the DBMS.

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9626/32/O/N/20/Q4

A store that sells and delivers furniture is installing a new ordering and booking computer system to replace its old computer system. The direct changeover method of implementation will be used.

(a) Describe, in detail, the steps that need to be taken to prepare for the changeover and the steps that need to be taken after the changeover.

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STUDENTS RESOURCE

CamScanner

(b) Give **two** reasons why direct changeover is a suitable method of implementing the new system.

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(c) Give **two** reasons why direct changeover might **not** be a suitable method of implementing the new system.

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STUDENTS RESOURCE

CamScanner

9626/33/O/N/20/Q7

5 A bank is installing a new computer system to replace its existing system.

Analyse the suitability of the parallel running implementation method in this situation.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/F/M/21/Q5

36 A software company uses the waterfall method to create its products.

(a) Describe the main phases in the waterfall method of developing software.

(b) The new software products have to be tested.

Describe the differences between alpha and beta testing.

STUDENT RESOURCE

CamScanner

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(c) During the creation and testing of the products, some developers are allowed to telework.

(i) Describe what is meant by teleworking.

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(ii) Describe **two** possible effects of teleworking on the developers.

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STUDENTS RESOURCE

CamScanner

9626/32/F/M/21/Q7

37 A café owner wants to research the background and views of her customers about the food and service in the café. She has decided to interview each of her customers.

Evaluate, by weighing up the advantages and disadvantages, the use of interviews for gathering information about the background and views of the customers.

[8]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/21/Q5

A manager of a library is considering introducing an updated computer system for lending out books. Library users will be asked to complete a questionnaire about the current system.

Evaluate, by weighing up the advantages and disadvantages, the use of questionnaires for gathering information in this scenario.

[8]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/21/Q7

39 A hospital is to replace its database management system (DBMS) for storing patient records with a new system.

Analyse the effectiveness of the phased implementation method to install the new DBMS.

[8]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/21/Q9

40 A software company uses Rapid Application Development (RAD) to create its products.

(a) Describe the stages involved in the RAD process.

[6]

(b) Describe reasons why the company is using RAD instead of a more traditional waterfall method of software development.

[4]

STUDENTS RESOURCE

ALI AKRAM

CamScanner

9626/32/M/J/21/Q9

41 A new store is being opened and a spreadsheet is being created to manage its finances and to calculate the projected profits.

(a) There are several ways of prototyping software during development.

Suggest reasons why incremental prototyping would be the most appropriate method to use.

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Test data has been created to fully test the spreadsheet.

(b) Explain why test data is being used.

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STUDENTS RESOURCE

CamScanner

9626/32/M/J/21/Q10

42 A regional government is planning to install broadband internet technology throughout its rural areas.

Analyse the effectiveness of using pilot implementation when installing the technology.

[8]

STUDENTS RESOURCE
ALI AKRAM
CamScanner

9626/32/M/J/21/Q10

43 A regional government is planning to install broadband internet technology throughout its rural areas.

Analyse the effectiveness of using pilot implementation when installing the technology.

[8]

STUDENTS RESOURCE

CamScanner

9626/31/O/N/21/Q1

4 A company wants to use an online questionnaire to get feedback from customers about the medicine it makes.

(a) Describe the features of online questionnaires that make them suitable for gathering feedback from customers.

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(b) Describe **two** drawbacks of using online questionnaires to gather feedback.

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STUDENTS RESOURCE

CamScanner

9626/31/O/N/21/Q8

45 A new software application, which consists of many modules, is being developed. Testing is an important stage in the development of new software.

Compare and contrast alpha testing and beta testing.

[5]

9626/32/O/N/21/Q2

46 When beta testing a new software application, the tester found an error and created a report about the error.

Describe the items of information, including those related to the test plan, that should be included in the report.

[5]

STUDENTS' RESOURCE

CamScanner

9626/32/F/M/22/Q5

47 On-screen input forms are used by office workers to enter data into computer systems. A well-designed input form will collect good-quality input so that good-quality output can be produced.

Explain how a well-designed on-screen input form helps prevent users from making mistakes when entering data.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/F/M/22/Q10

48 A new computer application has been developed to replace the current application that is in use by a company.

Describe how the new application will be evaluated.

[6]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/22/Q9

9 A new database management system (DBMS) is to be created for a health care centre to store patient records. Health care professionals will use the DBMS when treating patients. A design specification has to be written before the DBMS is created.

(a) Explain why a design specification is needed.

[4]

(b) Describe the contents of a design specification for the new DBMS.

[6]

STUDENTS RESOURCE

CamScanner

9626/32/M/J/22/Q3

50 A technician is carrying out corrective maintenance on a computer system.

(a) Explain what is meant by corrective maintenance.

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(b) Describe the steps that the technician should take when carrying out the maintenance.

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STUDENTS RESOURCE

CamScanner

9626/32/M/J/22/Q6

51 A manufacturing company uses outdated hardware and software which need to be replaced with new hardware and software.

Discuss the benefits and drawbacks of using parallel running to change over from the old hardware and software to the new hardware and software.

[6]

STUDENTS RESOURCE

CamScanner